Claims

We claim:

1. A compound of formula (I)

$$B\text{-}S(O)_{0\text{-}2}\text{-}(CH_2)_{0\text{-}1}\text{-}CR^2R^3\text{-}CR^4R^5\text{-}COY \qquad (I)$$

wherein

Y is selected from the group consisting of OR^1 and NHOH;

R^2 and R^4 are independently selected from the group consisting of H and a moiety (optionally substituted with R^{10}) selected from $C_{1\text{-}6}$ alkyl, $C_{2\text{-}6}$ alkenyl, aryl, $C_{1\text{-}6}$ alkyl-aryl, heteroaryl, $C_{1\text{-}6}$ alkyl-heteroaryl, heterocycloalkyl, $C_{1\text{-}6}$ alkyl-heterocycloalkyl, cycloalkyl and $C_{1\text{-}6}$ alkyl-cycloalkyl;

R^1 and R^3 and R^5 are independently selected from the group consisting of H and $C_{1\text{-}6}$ alkyl;

provided that not more than two of R^2, R^3, R^4 and R^5 are H; or

any of CR^2R^3, CR^4R^5 and $CR^2\text{-}CR^4$ is a cycloalkyl or heterocycloalkyl ring optionally substituted with R^{10} or a group (optionally substituted with R^{10}) selected from $C_{1\text{-}6}$ alkyl, aryl, $C_{1\text{-}6}$ alkyl-aryl, heteroaryl and $C_{1\text{-}6}$ alkyl-heteroaryl;

B is selected from the group consisting of $C_{1\text{-}8}$ alkyl, $C_{2\text{-}6}$ alkenyl and $C_{2\text{-}6}$ alkynyl, and is substituted with R^6;

R^6 is selected from the group consisting of $N(R^7)_2$, OR^7, COR^7, $C(=NOR^9)R^7$, NR^7R^8, $S(O)_{0\text{-}2},R^9$, and $SO_2N(R^7)_2$;

R^7 is selected from the group consisting of H and a moiety selected from $C_{1\text{-}6}$ alkyl, aryl, $C_{1\text{-}6}$ alkyl-aryl, heteroaryl, $C_{1\text{-}6}$ alkyl-heteroaryl, cycloalkyl, $C_{1\text{-}6}$ alkyl-cycloalkyl, heterocycloalkyl and $C_{1\text{-}6}$ alkyl-heterocycloalkyl, wherein said moiety is optionally substituted with R^9, COR^9, $SO_{0\text{-}2}R^9$, CO_2R^9, OR^9, $CONR^1R^9$, NR^1R^9, halogen, CN, $SO_2NR^1R^9$ or NO_2, and for each case of $N(R^7)_2$ the R^7 groups are the same or different, or $N(R^7)_2$ is heterocycloalkyl optionally substituted with R^9, COR^9, $SO_{0\text{-}2}R^9$, CO_2R^9, OR^9, $CONR^1R^9$, NR^1R^9, halogen, CN, $SO_2NR^1R^9$ or NO_2;

R^8 is selected from the group consisting of COR^7, $CON(R^7)_2$, CO_2R^9 and SO_2R^9;

R^9 is selected from the group consisting of $C_{1\text{-}6}$ alkyl, aryl, $C_{1\text{-}6}$ alkyl-aryl, heteroaryl and $C_{1\text{-}6}$ alkyl-heteroaryl; and

R^{10} is selected from the group consisting of OR^7, COR^7, CO_2R^1, $CON(R^7)_2$, NR^7R^8, $S(O)_{0-2}R^9$, $SO_2N(R^7)_2$, CN, halogen and cycloimidyl (optionally substituted with R^1); or

a salt, solvate, hydrate, N-oxide or protected amino, protected carboxy or protected hydroxamic acid derivative thereof.

2. The compound of claim 1, wherein R^2 or R^4 is optionally substituted C_{1-6} alkyl, C_{1-6} alkyl-heteroaryl, or C_{1-6} alkyl-heterocycloalkyl; or CR^2R^3, CR^4R^5 or CR^2-CR^4 forms the said optionally substituted ring.

3. The compound of claim 1, wherein B is C_{1-8} alkyl substituted with R^6.

4. The compound of claim 3, wherein B is C_{1-8} alkyl substituted with OR^7.

5. The compound of claim 4, wherein R^7 is optionally substituted aryl or heteroaryl.

6. The compound of claim 1, wherein $S(O)_{0-2}$ is SO_2.

7. The compound of claim 1, selected from the group consisting of
methyl 4-((3-(3-pyridyloxy)propylsulfanyl)methyl)tetrahydropyran-4-carboxylate,
methyl 4-((3-(3-pyridyloxy)propylsulfonyl)methyl)tetrahydropyran-4-carboxylate, and
4-((3-(4-pyridyloxy)propylsulfonyl)methyl)tetrahydropyran-4-carboxylate.

8. The compound of claim 1, selected from the group consisting of
2-(3-phenoxypropylsulfanyl)cyclopentanecarboxylic acid methyl ester,
2-(3-phenoxypropane-1-sulfonyl)cyclopentanecarboxylic acid methyl ester,
2-(3-phenoxypropane-1-sulfonyl)cyclopentanecarboxylic acid and
2-(3-phenoxypropane-1-sulfonyl)cyclopentanecarboxylic acid hydroxyamide.

9. A pharmaceutical composition for the use in therapy, comprising a compound of claim 1, and a pharmaceutically-acceptable diluent or carrier.

10. A method for the treatment of a condition selected from the group consisting of asthma, inflammation, inflammatory diseases, autoimmune, infectious or ocular diseases, age-related macular degeneration, and cancer, which comprises administering to a subject in need thereof an effective amount of a compound of claim 1.

11. A compound of formula (I)

$$B\text{-}S(O)_{0\text{-}2}\text{-}(CH_2)_{0\text{-}1}\text{-}CR^2R^3\text{-}CR^4R^5\text{-}COY \quad (I)$$

wherein

Y is selected from the group consisting of OR^1 and NHOH;

R^2 and R^4 are independently selected from the group consisting of H and a moiety (optionally substituted with R^{10}) selected from $C_{1\text{-}6}$ alkyl, $C_{2\text{-}6}$ alkenyl, aryl, $C_{1\text{-}6}$ alkyl-aryl, heteroaryl, $C_{1\text{-}6}$ alkyl-heteroaryl, heterocycloalkyl, $C_{1\text{-}6}$ alkyl-heterocycloalkyl, cycloalkyl and $C_{1\text{-}6}$ alkyl-cycloalkyl;

R^1, R^3 and R^5 are independently selected from the group consisting of H and $C_{1\text{-}6}$ alkyl;

provided that not more than two of R^2, R^3, R^4 and R^5 are H; or

any of CR^2R^3, CR^4R^5 and $CR^2\text{-}CR^4$ is a cycloalkyl or heterocycloalkyl ring optionally substituted with R^{10} or a group (optionally substituted with R^{10}) selected from $C_{1\text{-}6}$ alkyl, aryl, $C_{1\text{-}6}$ alkyl-aryl, heteroaryl and $C_{1\text{-}6}$ alkyl-heteroaryl;

B is $C_{1\text{-}6}$ alky-heterocycloalkyl group optionally substituted with R^6 or R^7;

R^6 is selected from the group consisting of $N(R^7)_2$, OR^7, COR^7, $C(=NOR^9)R^7$, NR^7R^8, $S(O)_{0\text{-}2}R^9$ and $SO_2N(R^7)_2$;

R^7 is selected from the group consisting of H and a moiety selected from $C_{1\text{-}6}$ alkyl, aryl, $C_{1\text{-}6}$ alky-aryl, heteroaryl, $C_{1\text{-}6}$ alky-heteroaryl, cycloalkyl, $C_{1\text{-}6}$ alkyl-cycloalkyl, heterocycloalkyl and $C_{1\text{-}6}$ alkyl-heterocycloalkyl, wherein said moiety is optionally substituted with R^9, COR^9, $SO_{0\text{-}2}R^9$, CO_2R^9, OR^9, $CONR^1R^9$, NR^1R^9, halogen, CN, $SO_2NR^1R^9$ or NO_2, and for each case of $N(R^7)_2$ the R^7 groups are the same or different, or $N(R^7)_2$ is heterocycloalkyl optionally substituted with R^9, COR^9, $SO_{0\text{-}2}R^9$, CO_2R^9, OR^9, $CONR^1R^9$, NR^1R^9, halogen, CN, $SO_2NR^1R^9$ or NO_2;

R^8 is selected from the group consisting of COR^7, $CON(R^7)_2$, CO_2R^9 and SO_2R^9;

R^9 is selected from the group consisting of $C_{1\text{-}6}$ alkyl, aryl, $C_{1\text{-}6}$ alkyl-aryl, heteroaryl and $C_{1\text{-}6}$ alkyl-heteroaryl; and

R^{10} is selected from the group consisting of OR^7, COR^7, CO_2R^1, $CON(R^7)_2$, NR^7R^8, $S(O)_{0-2}R^9$, $SO_2N(R^7)_2$, CN, halogen and cycloimidyl (optionally substituted with R^1); or

a salt, solvate, hydrate, N-oxide or protected amino, protected carboxy or protected hydroxamic acid derivative thereof.

12. The compound of claim 11, wherein R^2 or R^4 is optionally substituted C_{1-6} alkyl, C_{1-6} alkyl-heteroaryl, or C_{1-6} alkyl-heterocycloalkyl; or CR^2R^3, CR^4R^5 or CR^2-CR^4 forms the said optionally substituted ring.

13. The compound of claim 11, wherein the alkyl group in B is selected from the group consisting of ethyl and propyl.

14. The compound of claim 11, wherein the heterocycloalkyl group in B is selected from the group consisting of azetidinyl, pyrrolidinyl and piperdinyl, aryl which is substituted with R^7.

15. The compound of claim 14, wherein R^7 is optionally substituted aryl or heteroaryl.

16. The compound of claim 11, wherein $S(O)_{0-2}$ is SO_2.

17. The compound of claim 11, selected from the group consisting of

1-{2-[1-(4-nitrophenyl)pyrrolidin-3-yl]ethylsulfanylmethyl}cyclobutanecarboxylic acid ethyl ester,

1-{2-[1-(4-nitrophenyl)pyrrolidin-3-yl]ethanesulfonylmethyl}cyclobutanecarboxylic acid ethyl ester,

1-{2-[1-(4-nitrophenyl)pyrrolidin-3-yl]ethanesulfonylmethyl}cyclobutanecarboxylic acid and

2-(piperidin-4-ylsulfanyl)cyclopentanecarboxylic acid methyl ester.

18. A pharmaceutical composition for use in therapy, comprising a compound of claim 11, and a pharmaceutically-acceptable diluent or carrier.

19. A method for the treatment of a condition selected from the group consisting of asthma, inflammation, inflammatory diseases, autoimmune, infectious or ocular diseases, age-related macular degeneration, and cancer, which comprises administering to a subject in need thereof an effective amount of a compound of claim 11.

20. A compound of formula (I)

$$B\text{-}S(O)_{0\text{-}2}\text{-}(CH_2)_{0\text{-}1}\text{-}CR^2R^3\text{-}CR^4R^5\text{-}COY \quad (I)$$

wherein

Y is selected from the group consisting of OR^1 and NHOH;

R^2 and R^4 are independently selected from the group consisting of H and a moiety (optionally substituted with R^{10}) selected from $C_{1\text{-}6}$ alkyl, $C_{2\text{-}6}$ alkenyl, aryl, $C_{1\text{-}6}$ alkyl-aryl, heteroaryl, $C_{1\text{-}6}$ alkyl-heteroaryl, heterocycloalkyl, $C_{1\text{-}6}$ alkyl-heterocycloalkyl, cycloalkyl and $C_{1\text{-}6}$ alkyl-cycloalkyl;

R^1, R^3 and R^5 are independently selected from the group consisting of H and $C_{1\text{-}6}$ alkyl;

provided that not more than two of R^2, R^3, R^4 and R^5 are H; or

any of CR^2R^3, CR^4R^5 and $CR^2\text{-}CR^4$ is a cycloalkyl or heterocycloalkyl ring optionally substituted with R^{10} or a group (optionally substituted with R^{10}) selected from $C_{1\text{-}6}$ alkyl, aryl, $C_{1\text{-}6}$ alkyl-aryl, heteroaryl and $C_{1\text{-}6}$ alkyl-heteroaryl;

B is heterocycloalkyl, optionally substituted with R^6 or R^7, bonded through a C atom to $S(O)_{0\text{-}2}$.

R^6 is selected from the group consisting of $N(R^7)_2$, OR^7, COR^7, $C(=NOR^9)R^7$, NR^7R^8, $S(O)_{0\text{-}2}R^9$ and $SO_2N(R^7)_2$;

R^7 is selected from the group consisting of H and a moiety selected from $C_{1\text{-}6}$ alkyl, aryl, $C_{1\text{-}6}$ alkyl-aryl, heteroaryl, $C_{1\text{-}6}$ alky-heteroaryl, cycloalkyl, $C_{1\text{-}6}$ alky-cycloalkyl, heterocycloalkyl and $C_{1\text{-}6}$ alkyl-heterocycloalkyl, wherein said moiety is optionally substituted with R^9, COR^9, $SO_{0\text{-}2}R^9$, CO_2R^9, OR^9, $CONR^1R^9$, NR^1R^9, halogen, CN, $SO_2NR^1R^9$ or NO_2, and for each case of $N(R^7)_2$ the R^7 groups are the same or different, or $N(R^7)_2$ is heterocycloalkyl optionally substituted with R^9, COR^9, $SO_{0\text{-}2}R^9$, CO_2R^9, OR^9, $CONR^1R^9$, NR^1R^9, halogen, CN, $SO_2NR^1R^9$ or NO_2;

R^8 is selected from the group consisting of COR^7, $CON(R^7)_2$, CO_2R^9 and SO_2R^9;

R^9 is selected from the group consisting of $C_{1\text{-}6}$ alkyl, aryl, $C_{1\text{-}6}$ alkyl-aryl, heteroaryl and $C_{1\text{-}6}$ alky-heteroaryl; and

R^{10} is selected from the group consisting of OR^7, COR^7, CO_2R^1, $CON(R^7)_2$, NR^7R^8, $S(O)_{0-2}R^9$, $SO_2N(R^7)_2$, CN, halogen and cycloimidyl (optionally substituted with R^1); or

a salt, solvate, hydrate, N-oxide or protected amino, protected carboxy or protected hydroxamic acid derivative thereof.

21. The compound of claim 20, wherein R^2 or R^4 is optionally substituted C_{1-6} alkyl, C_{1-6} alkyl-heteroaryl, or C_{1-6} alkyl-heterocycloalkyl; or CR^2R^3, CR^4R^5 or CR^2-CR^4 forms the said optionally substituted ring.

22. The compound of claim 20, wherein B is selected from the group consisting of azetidinyl, pyrrolidinyl and piperidinyl, any of which is substituted with R^7.

23. The compound of claim 22, wherein R^7 is optionally substituted aryl or heteroaryl.

24. The compound of claim 20, wherein $S(O)_{0-2}$ is SO_2.

25. The compound of claim 20, selected from the group consisting of

4-(1-methoxycarbonylcyclohexylmethylsulfanyl)piperidine-1-carboxylic acid *tert*-butyl ester,

2-(piperidin-4-ylsulfanyl)cyclopentanecarboxylic acid methyl ester,

1-(piperidin-4-ylsulfanylmethyl)cyclohexanecarboxylic acid methyl ester,

2-[1-(4-cyanophenyl)piperidin-4-ylsulfanyl]cyclopentane-carboxylic acid methyl ester,

1-[1-(4-nitrophenyl)piperidin-4-ylsulfanylmethyl]cyclohexanecarboxylic acid methyl ester,

2-[1-(4-cyanophenyl)piperidin-4-ylsulfanyl]cyclopentanecarboxylic acid,

1-[1-(4-nitrophenyl)piperidin-4-ylsulfanylmethyl]cyclohexanecarboxylic acid and

1-[1-(4-nitrophenyl)piperidin-4-ylsulfinylmethyl]cyclohexanecarboxylic acid.

26. A pharmaceutical composition for use in therapy, comprising a compound of claim 20, and a pharmaceutically-acceptable diluent or carrier.

27. A method for the treatment of a condition selected from the group consisting of asthma, inflammation, inflammatory diseases, autoimmune, infectious or ocular diseases, age-related macular degeneration, and cancer, which comprises administering to a subject in need thereof an effective amount of a compound of claim 20.